Certify Sustainable Aquaculture?

Certification's limited contribution to sustainable aquaculture should complement public and private governance.

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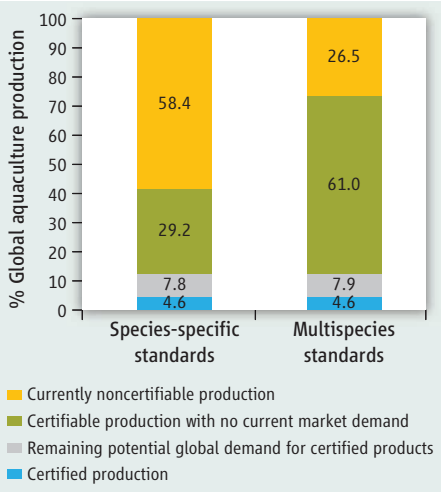
Aquaculture, the farming of aquatic organisms, provides close to 50% of the world's supply of seafood, with a value of U.S. $125 billion. It makes up 13% of the world's animal-source protein (excluding eggs and dairy) and employs an estimated 24 million people (*1*). With capture (i.e., wild) fisheries production stagnating, aquaculture may help close the forecast global deficit in fish protein by 2020 (*2*). This so-called "blue revolution" requires addressing a range of environmental and social problems, including water pollution, degradation of ecosystems, and violation of labor standards.

One response to these problems has been the rise of sustainability certification. Reflecting on the launch of the Aquaculture Stewardship Council (ASC) to oversee sustainability standards, we argue that, although certification makes a contribution, it also has significant limits and should be considered one approach among many for steering aquaculture toward sustainable production.

Sustainability certification is a market-based system involving (i) setting standards for ecological and social interactions, (ii) auditing compliance with these standards, (iii) attaching labels to products and enterprises that meet the standards, and (iv) creating institutions to perform these functions (*3*). Although these can be carried out by public bodies, certification systems largely run by private organizations, such as firms and/or nongovernmental organizations (NGOs), are gaining prominence.

Certification has emerged in sectors where governance has shifted away from state regulation. Activists frustrated with slow and inadequate government responses to environmental threats and private sector actors seeking to avoid increased production costs and damage to their reputations have contributed to the rise of certification (*4*, *5*). The goals of certification include increasing consumer trust, providing legitimacy to producers, and reducing liability by ensuring compliance with safety and quality standards (*4*). These goals also motivate seafood sustainability certification, including both aquaculture and capture fisheries, which has expanded in recent years to include more than 30 standards and information schemes (*6*).



Global potential of certified aquaculture production. The left bar reflects standards adopted by the ASC. The right bar reflects standards adopted by GLOBALG.A.P. and ACC (see SM for details).

Markets for Sustainability Certification

The greatest demand for certified aquaculture products comes from North America and Europe, where large supermarket and restaurant chains have committed to selling only certified sustainable seafood by 2015 (*7*). Global and regional buyers are turning to certified seafood in response to NGO campaigns that threaten their brands by associating them with "bad" environmental and labor practices.

Only a small proportion of world aquaculture production (4.6%) is currently certified (see the chart). The approach to date, now exemplified by the ASC, has been to develop "species-specific" standards for each of the 13 species groups with the highest demand in global export markets. These account for 41.6% of worldwide aquaculture production by weight, which leaves 58.4% not covered and, therefore, "noncertifiable" (see the chart). Recent introduction of generic multispecies standards (that apply across more than one species group) by two ASC competitors, the Aquaculture Certification Council (ACC) and the Good Agricultural Practices organization GLOBALG.A.P., has expanded the potentially certifiable volume of global production to 73.5% (see the chart). Despite covering nearly twice as much production, the multispecies standards represent an increase of only 0.1% in likely demand over the species-specific standards, because much of what is potentially certifiable is produced and sold in countries (notably China) with little demand for sustainability certification (*8*) [see supplementary materials (SM)].

Certification schemes cover a range of criteria from organic to responsible to sustainable aquaculture, representing demand for different product qualities. Schemes compete for suppliers, which must comply with one or more standards to access specific (northern) markets. They compete for buyers by attempting to convince retailers and branded agro-food processors to distribute aquaculture products carrying their label. They compete for approval from—and form alliances with—influential NGOs.

Producers have to make strategic decisions about which standards to adopt and, thus, which processors to use and international markets to access. These choices also influence the support that local governments, NGOs, and donors offer (e.g., by underwriting on-farm improvements or management of common resources, such as water).

Narrow Take on Sustainability

The unit of certification largely determines what is included in and excluded from definitions of sustainability. Fisheries and forestry certification schemes take zonal or sectoral approaches and involve resource managers (e.g., boards and government departments). Certification in aquaculture, as in organic agriculture, takes an enterprise-level approach. Because private production units (farms or value chains) are certified, the cumulative impacts of multiple farms in a particular location (*9*) or the

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impact of aquaculture on surrounding agriculture or mangrove conservation is rarely effectively considered (*10*). Farm-level certification systems, such as ASC, pay some attention to effects from inputs, such as seed and feed, but do not include those resulting from processing [e.g., (*11*)]. The impact of nonmarine feed inputs, such as soy and wheat, is not considered. None of the main aquaculture certification schemes consider environmental costs of distribution and transportation.

These narrow definitions of sustainability reflect the structure of standard-setting institutions and the feasibility of measurement and regulation using technical parameters. Even multistakeholder processes used to develop ASC standards, including public input through forums and online review, have been criticized for adopting a technical focus that reflects interests and values of the most powerful actors to the exclusion of others (*9*). Many stakeholders, especially producers in the Global South, are unable to participate for reasons of language, access, cost, time, or resources; others disagree with the whole approach. Even when such stakeholders participate, they are often unable to meaningfully influence outcomes (*9*).

This suggests that certification is substantially a strategy for buyers to avoid adverse publicity by outsourcing reputational risk, whereas costs are imposed on suppliers. The leverage of powerful actors, including environmental activists and northern buyers, in defining standards for aquaculture has left little room for local understandings of agroecology and social dimensions of equity and justice (*12*).

Although the ASC has incorporated social standards, the codification of complex, context-dependent social issues, especially those beyond the farm, remains problematic. Working conditions and worker rights are a key issue with shrimp and salmon produced in the Global South. Certification may produce enclaves with improved working conditions and may raise the profile of labor issues with state regulatory agencies. But certification alone cannot improve poor working conditions in the broader aquaculture sector.

Inclusion and Exclusion

Certification is complex and expensive and assumes a level of managerial capability that most aquaculture producers in the Global South do not have. Without external support (e.g., from a collective or co-op, donor-funded project, processor or buyer, government, or NGO), smallholders are often excluded from markets that require certification. Compliance is easier for larger-scale, better-capitalized production units that can deal with record-keeping and administrative requirements; certification tends to strengthen trends toward consolidation in export-oriented sectors (*13*). Not only producers are excluded, but also up- and downstream supply chain actors, e.g., collectors, small-scale traders, brokers, and input suppliers.

Variants of certification systems (such as group certification) that cater to problems of smallholders can mitigate these exclusions. However, although niche schemes (e.g., organic and fair trade) confer premiums that can protect smaller enterprises, schemes that target mainstream northern markets, such as the ASC, do not. A failure to tailor certification to smallholder needs usually results in their exclusion from these markets (*14*). Smallholders already forced to comply with advanced national food safety and traceability systems [e.g., those in Thailand, see (*15*)] are better positioned to meet stringent organic or sustainability certification requirements than those in countries where state enforcement is weaker.

The addition of carp to new multispecies standards appears to mark an expansion of coverage but highlights a point of exclusion. Because of differing cuisines and the consumption of a relatively small range of species in northern markets (carp is predominantly grown and consumed in the Global South), widespread certification of carp is unlikely. Even if carp is certified, consumer interest in emerging middle-class markets focuses on food safety, and sustainability or social qualities remain niche concerns (*8*). Nevertheless, emergence of domestic standards demonstrates that concern over sustainability may increase; certifiers should explore complementarities given projected future dominance of these markets.

Beyond Limits to Certification

Comparative advantages and potential synergies of certification should be explored vis-à-vis a mix of other private governance strategies (e.g., ethical supply chain management) and state regulation. Although private sustainability certification was born in part out of fear of underregulation by states, it is now blamed for being inflexible, divisive, and restrictive (*5*). The assumption that countries in the Global South are incapable of regulating aquaculture no longer holds true everywhere. Countries that have dealt with mandatory international food-safety requirements demonstrate a capacity to better govern sustainability and represent some of the most important domestic markets in the Global South for aquaculture products.

Northern-led certification need no longer be imposed in lieu of state regulation or in isolation from local standards development but should be institutionalized as part of a broader array of approaches, including state and private regulation in the Global South. Successful certification schemes often build on what the state has already done, through food safety, traceability, or state-led voluntary better-management practices (*12*, *16*). The question remains as to whether improved public and private engagement in the South would result in less exclusionary outcomes for producers. But as limitations of international sustainability certification become apparent, there is a need to explore new hybrid forms of environmental governance that draw on the strengths of states, the private sector, and institutions such as ASC.

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Supplementary Materials

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